Attachment 7c. Additional Analyses for Regulatory Amendment 25: commercial trip limit and recreational bag limit for blueline tilefish.

NMFS Southeast Regional Office

November 2015

SAFMC Regulatory Amendment 25: Blueline Tilefish Commercial Trip Limit

In March 2015, a 100-pound gutted weight trip limit was implemented for South Atlantic commercial blueline tilefish. To evaluate the impacts of increasing this trip limit, we evaluated the ratios of mean 2012-2014 landings under simulated 150, 200, 250, 300, and 400-pound gutted weight trip limits to a simulated 100-pound gutted weight trip limit. We also evaluated the percentage of trips with landings at various trip limit thresholds, and evaluated the number and percentage of vessels that would be impacted by various trip limit alternatives.

Table 1. Projected increases in harvest under proposed trip limit alternatives relative to statutory baseline of 100-pound trip limit (implemented March 2015).

Trip Limit	Mean 2012-2014	2014
100 (status quo)	100%	100%
150	129%	128%
200	156%	152%
250	180%	174%
300	202%	192%
400	243%	225%

SOURCE: SEFSC Commercial logbook (Sept 2015).

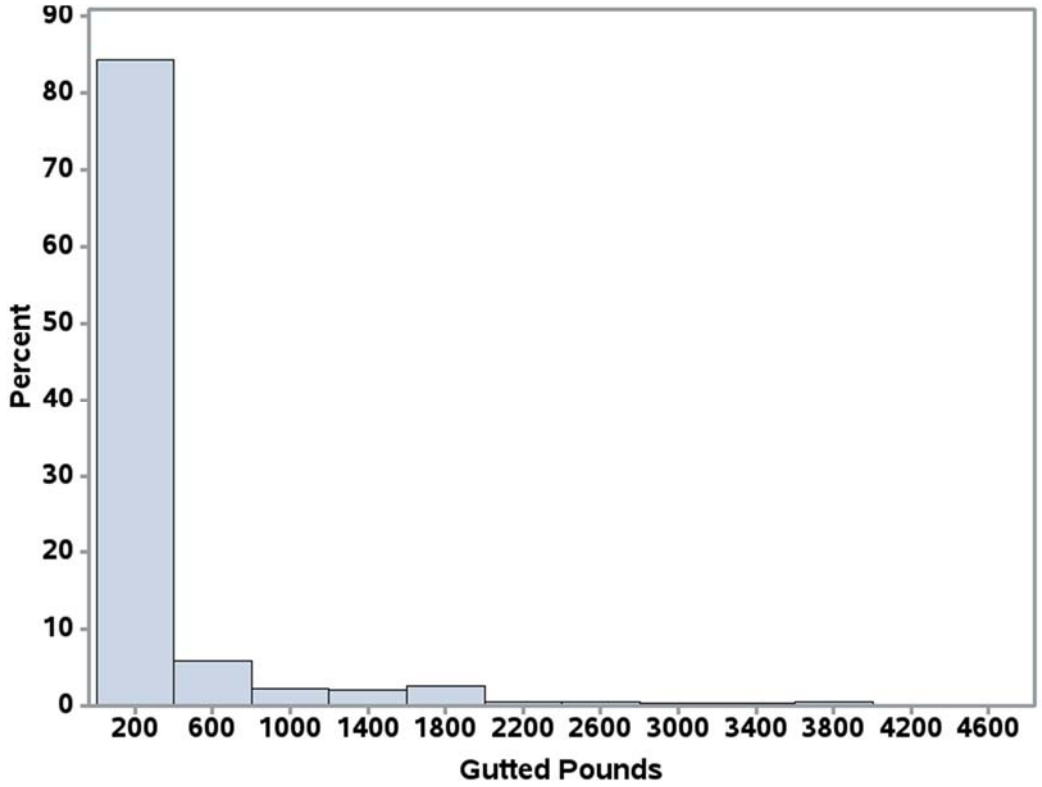

Figure 1. Catch per trip (pounds gutted) of South Atlantic commercial blueline tilefish in 2014. SOURCE: SEFSC Commercial logbook (Sept 2015).

Table 2. Vessels at or above proposed trip limit alternatives.

		TRIP LIMIT (pounds gutted weight)					
Year	**No Limit**	**400**	**300**	**250**	**200**	**150**	**100**
2010	131	21	23	24	29	32	40
2011	98	17	19	21	24	28	31
2012	123	15	16	18	22	25	34
2013	129	22	25	29	35	40	45
2014	137	23	30	32	36	45	57
Mean 2012-2014	130	20	24	26	31	37	45
Pct Impacted	100%	15%	18%	20%	24%	28%	35%

REG 25 - Table 2.1.1. Proposed South Atlantic ABC, ACLs (including sector ACLs) and recreational annual catch target for blueline tilefish in the South Atlantic.

	Alt 2 (98%)	**Alt 3 (96%)**	**Alt 4 (93%)**	**Alt 5 (89%)**	**Alt 6 (88%)**	**Alt 7 (78%)**
Stock ABC	224,100	224,100	224,100	224,100	224,100	224,100
Total ACL	219,618	215,136	208,413	199,449	197,208	174,798
Comm ACL	109,963	107,719	104,352	99,864	98,742	87,521
Rec ACL	109,655	107,417	104,061	99,585	98,466	87,277
Rec ACT	68,666	67,265	65,163	62,360	61,659	54,653

Note: The ACLs are based on a stock ABC recommendation of the equilibrium yield at 75%F_{MSY} (224,100 lbs ww). The sector ACLs are based on allocations of 50.07% commercial and 49.93% recreational. The recreational ACT is based on the ACT equation where rec ACL*(1-PSE) or rec ACL*0.5, whichever is greater. The percent standard error is 37.38%.

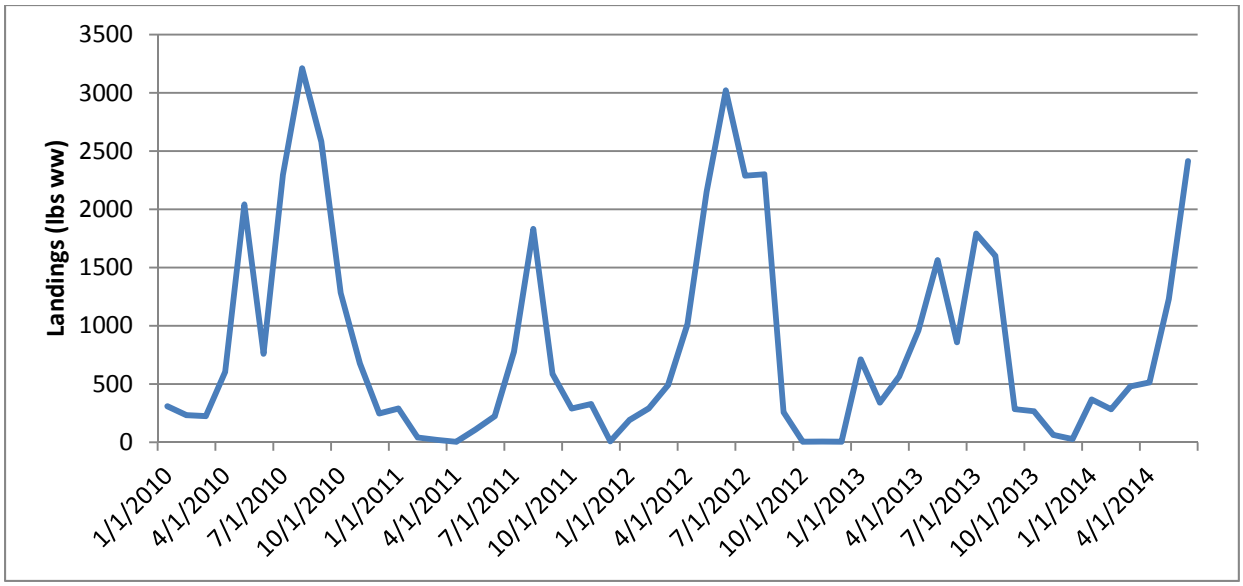

Figure 2. Blueline tilefish commercial daily catch rates (pounds whole weight per open day), by month and year, for fish landed in SAFMC jurisdictional waters. SOURCE: SEFSC ACL Database (Oct 2015).

Projections

Based on landings records in the SEFSC Commercial ACL database (Oct 2015), commercial blueline tilefish daily catch rates followed a consistent trend through time from 2010-2014 (Figure 2); however, in-season quota monitoring reports from 2015 indicate 82,647 pounds whole weight (lb ww) were landed between Jan 1-Apr 7, 2015, when the fishery was closed. This is approximately double the landings from the same period in 2014. If the trend observed in Jan-Apr 2015 continued, any approach using historical data would underestimate future May-Dec catch rates. Thus, four projection approaches were taken:

(1) Mean catch rates 2010-2014
(2) Last available ACL data (Jan-Jun 2014, Jul-Dec 2013)
(3) Last available data (Jan-Apr 2015 Quota Monitoring with catch rate distributed by month based on 2014 landings, May-June 2014 ACL data, Jul-Dec 2013 ACL data)
(4) Last available data plus scaled historical data (Jan-Apr 2015 Quota Monitoring with catch rate distributed by month based on 2014 landings, ratio of Jan-Apr 2015 Quota monitoring data to Jan-Apr 2014 ACL data times May-June 2014 ACL data, ratio of Jan-Apr 2015 Quota monitoring data to Jan-Apr 2013 ACL data times Jul-Dec 2013 ACL data)

Landings under these four approaches were summarized on a daily basis, with catch rates reduced by the impacts of the trip limits shown in Table 1. Catch rates for Scenarios 1-4 are shown in Table 3.

Note that the 100-pound trip limit was implemented in March 2015; thus, its effects are not encapsulated by the data used to model the catch rates. Thus, a new table of trip limit impacts was

needed to explore the impacts of the various trip limit alternatives upon the 2010-2014 catch rates. This new trip limit impacts table (Table 4) used the raw data as the baseline rather than the data with a simulated 100-pound trip limit as in Table 1.

Table 3. Projected monthly commercial catch rates in lbs ww/open day, by month, for South Atlantic blueline tilefish.

	SCENARIO 1	SCENARIO 2	SCENARIO 3	SCENARIO 4
Month	Mean 10-14	ACL 13-14	Most recent	Most recent scaled
1	374	367	612	612
2	237	282	471	471
3	356	479	799	799
4	618	514	857	857
5	1419	1230	1230	2052
6	1455	2414	2414	4026
7	1788	1791	1791	1900
8	2235	1600	1600	1698
9	928	284	284	302
10	460	266	266	282
11	268	63	63	66
12	72	28	28	30

SOURCES: SEFSC Commercial ACL database (Oct 2015) and SEFSC Quota Monitoring System (Nov 2015).

Table 4. Trip limit scalars applied to projected catch rates developed using data from prior to March 2015 implementation of 100-pound trip limit.

Trip Limit	Mean 2012-2014	2014
No Limit	100%	100%
400	30%	42%
300	25%	36%
250	22%	32%
200	19%	28%
150	16%	24%
100	12%	19%

Source: SEFSC Commercial Logbook (Sept 2015).

Projections suggested that the commercial blueline tilefish ACL would be met under a few catch rate scenarios in Table 3 for the ACL alternatives in Reg-25 Table 2.1.1 (Table 5). If catch rates from early 2015 are indicative of future catch rates and are sustainable across additional months, then the ACL might be met in July-August under a 400-pound trip limit. If catch rates follow the mean of 2010-2014 and the lowest ACL (Alternative 7) is selected, the ACL might be met in October at a 400-pound trip limit. Under ACL Alternative 7, assuming catch rate Scenario 4, the ACL could be met under a 300-pound and 250-pound trip limit as well. Finally, under ACL Alternative 6, , assuming catch rate Scenario 4, the ACL could be met under a 300-pound trip limit.

Table 4. Projected commercial blueline tilefish closure date in SAFMC waters under different Reg-25 proposed trip limits, ACL alternatives, and potential catch rates. Asterisk indicates no closure expected

	Alt2				Alt3				Alt4			
Comm ACL	109,963				107,719				104,352			
Scenario	1	2	3	4	1	2	3	4	1	2	3	4
100 lbs (SQ)	*	*	*	*	*	*	*	*	*	*	*	*
150 lbs	*	*	*	*	*	*	*	*	*	*	*	*
200 lbs	*	*	*	*	*	*	*	*	*	*	*	*
250 lbs	*	*	*	*	*	*	*	*	*	*	*	*
300 lbs	*	*	*	*	*	*	*	*	*	*	*	*
400 lbs	*	*	*	8/25	*	*	*	8/21	*	*	*	8/14
	Alt5				Alt6				Alt7			
Comm ACL	99,864				98,742				87,521			
Scenario	1	2	3	4	1	2	3	4	1	2	3	4
100 lb (SQ)	*	*	*	*	*	*	*	*	*	*	*	*
150 lb	*	*	*	*	*	*	*	*	*	*	*	*
200 lb	*	*	*	*	*	*	*	*	*	*	*	*
250 lb	*	*	*	*	*	*	*	*	*	*	*	10/29
300 lb	*	*	*	*	*	*	*	11/16	*	*	*	8/16
400 lb	*	*	*	8/5	*	*	*	8/3	10/11	*	8/28	7/14

Source: NMFS SERO

SAFMC Regulatory Amendment 25: Blueline tilefish recreational bag limit analysis

NOAA Fisheries Service
Southeast Regional Office

South Atlantic Fishery Management Council (SAFMC)'s Regulatory Amendment 25 to the Snapper-Grouper Fishery Management Plan (Reg-25) has proposed the following recreational bag limits for blueline tilefish:

- Alternative 1: 1 fish per vessel (May-Aug) [status quo]
- Alternative 2: 1 fish per person
- Alternative 3: 1 fish per vessel
- Alternative 4: 1 fish per person (May-Aug)
- IPT suggested Alternative 5: 3 fish per person

The statutory baseline is 1 fish per vessel (May-Aug) but this was only enacted in March 2015. Prior to March 2015, the bag limit was 3 fish per person (i.e., IPT suggested Alternative 5). Bag limit reduction tables are provided relative to both of these baselines. The biological and economic effects of Reg-25 would follow the table that shows increased landings from the proposed bag limits, as they are increased from the status quo; however, the data used to model season length projections must follow the table that shows reduced landings from the proposed bag limits, because the data used to model the season length projections is from the 2012-2014 period.

Bag limit computations were performed as follows: SEFSC Southeast Headboat Survey and MRIP Catch Effort files were obtained. These files were filtered for blueline tilefish landings in the South Atlantic from 2010-2014. Bag limit impacts were modeled by modifying trip records when catch-per-angler on the trip exceeded a given bag limit. For example, if catch per angler on a trip was 3 fish/angler and the bag limit being simulated was 1 fish/angler, the catch per trip was adjusted to reflect a 1 fish/angler catch rate. The total landings in pounds whole weight were summarized by season (Jan-Apr, May-Aug, Sept-Dec), bag limit alternative, year, and mode of fishing. There were insufficient samples for the MRIP Private mode to allow seasonal trends to be modeled; thus, MRIP Private bag limit impacts were treated annually. Headboat catches were adjusted for unreported trips using SEFSC-generated K-factors for equivalent vessels. This methodology is consistent to how headboat catches are monitored for ACL tracking. Summarized catches were averaged across years and compared to the baseline catch at either the statutory baseline (1 fish/vessel May-Aug) or the 2010-2014 baseline (3 fish/person). Because bag limit impacts would be computed as increases under the first baseline and as decreases under the second baseline, they are presented as scalars to baseline catch in the tables below. Table 1A presents the projected scalar increases in recreational harvest relative to the statutory baseline of 1 fish/vessel May-Aug. Table 1B presents the projected scalar reductions in recreational harvest relative to the 2010-2014 baseline of 3 fish/person.

To evaluate the impacts of the bag limit alternatives upon recreational fishing season length, projections were developed based on mean catch rates (catch in pounds per open day of fishing) observed from 2012-2014 (Table 2). These catches were projected on a daily basis and subjected to the relevant mode- and season-specific bag limit reductions. Cumulative landings in the projection model were tracked, and the day of an ACL overage was noted for all seven proposed ACL alternatives (Table 3). Only a 3-fish per person bag limit was projected to result in an ACL overage. It should be noted that based on annual landings, only 2013 annual landings exceeded the highest ACLs proposed in Reg-25 (Figure 1), due to extremely high MRIP Private catch rates estimated for Wave 1 and Wave 4.

Table 1A. Projected South Atlantic recreational blueline tilefish scalar changes in landings under various Reg-25 proposed bag limit alternatives, **relative to statutory baseline of 1 fish/vessel May-Aug**, based on simulations using mean 2010-2014 data.

	Charter Boat					Private					Headboat				
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Season	1 per vessel (May-Aug)	1 per person	1 per vessel	1 per person (May-Aug)	3 fish per person	1 per vessel (May-Aug)	1 per person	1 per vessel	1 per person (May-Aug)	3 fish per person	1 per vessel (May-Aug)	1 per person	1 per vessel	1 per person (May-Aug)	3 fish per person
Jan-Apr	0	132%	34%	0	291%	0	200%	100%	0	323%	0	859%	77%	0	1643%
May-Aug	100%	464%	100%	464%	873%	100%	200%	100%	200%	323%	100%	1524%	100%	1524%	3401%
Sept-Dec	0	254%	60%	0	541%	0	200%	100%	0	323%	0	777%	66%	0	1552%

Sources: SEFSC MRIP Catch-Effort Files (2015) and SEFSC Southeast Headboat Survey Catch-Effort Files (2015)

Table 1B. Projected South Atlantic recreational blueline tilefish scalar changes in landings under various Reg-25 proposed bag limit alternatives, **relative to 2009-2014 baseline of 3 fish/person**, based on simulations using mean 2010-2014 data.

	Charter Boat					Private					Headboat				
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
Season	1 per vessel (May-Aug)	1 per person	1 per vessel	1 per person (May-Aug)	3 fish per person	1 per vessel (May-Aug)	1 per person	1 per vessel	1 per person (May-Aug)	3 fish per person	1 per vessel (May-Aug)	1 per person	1 per vessel	1 per person (May-Aug)	3 fish per person
Jan-Apr	0	15%	4%	0	100%	0	62%	31%	0	100%	0	25%	2%	0	100%
May-Aug	11%	53%	11%	53%	100%	31%	62%	31%	62%	100%	3%	45%	3%	45%	100%
Sept-Dec	0	29%	7%	0	100%	0	62%	31%	0	100%	0	23%	2%	0	100%

Sources: SEFSC MRIP Catch-Effort Files (2015) and SEFSC Southeast Headboat Survey Catch-Effort Files (2015)

Table 2. Landings (pounds, whole weight) per open day, for recreational blueline tilefish, based on mean 2012-2014 data. Note the bag limit was 3 fish per angler during this time period.

Month	MRIP Charter	MRIP Private	Headboat
1	23.19	886.25	16.60
2	23.19	886.25	113.06
3	50.08	60.59	10.60
4	50.08	60.59	20.18
5	129.68	163.73	33.39
6	129.68	163.73	101.48
7	214.16	635.03	84.20
8	214.16	635.03	87.10
9	164.14	10.28	81.80
10	164.14	10.28	31.83
11	45.98	229.43	6.46
12	45.98	229.43	0.12

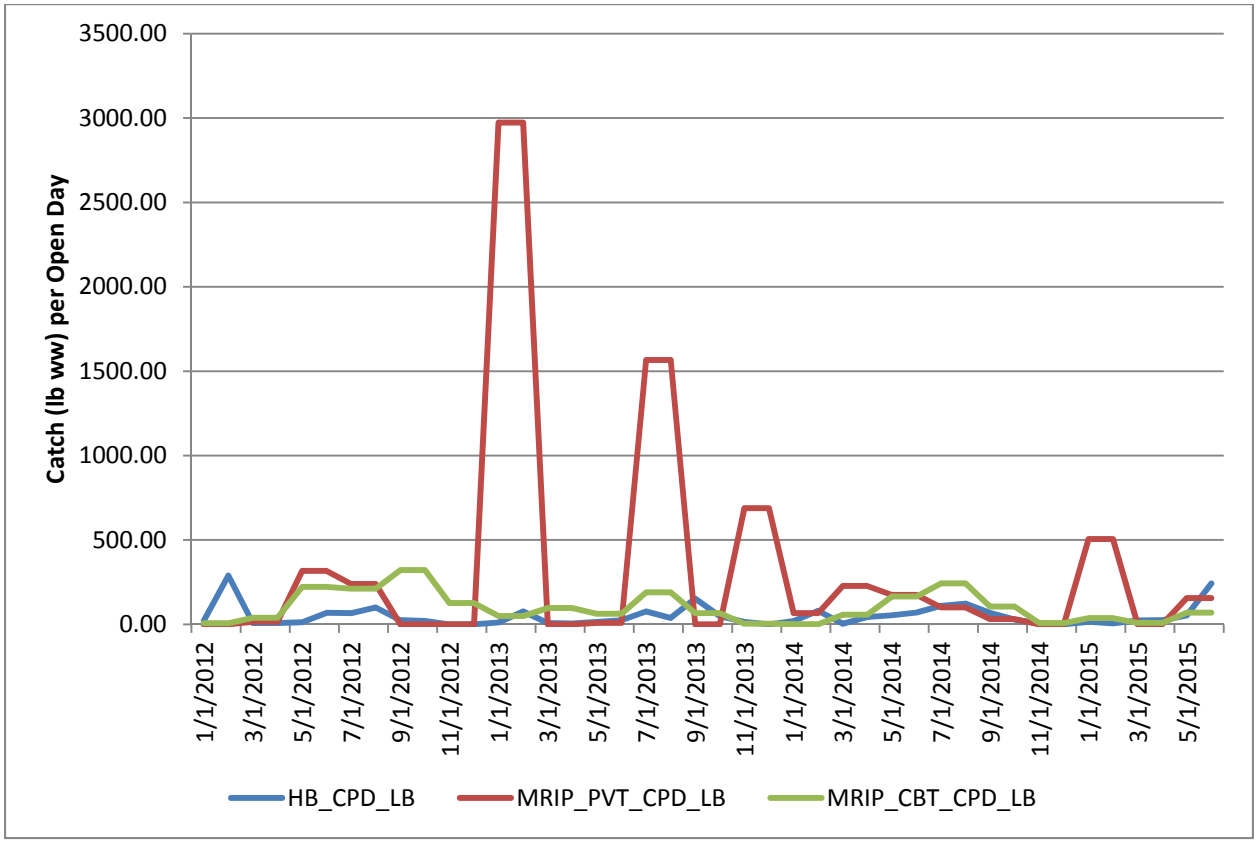

Figure 1. Observed landings, in pounds whole weight, per open day for South Atlantic recreational blueline tilefish, by month, from 2012-2015. Note spikes in Waves 1 and 4 of 2013.

Table 3. Projected closure dates and season lengths in days for South Atlantic recreational blueline tilefish prior to reaching annual catch limit (ACL) for each proposed ACL alternative and bag limit alternative in Reg-25.

		Closure Date							Days in Season						
	Bag Limit	ACL Alt1	ACL Alt2	ACL Alt3	ACL Alt4	ACL Alt5	ACL Alt6	ACL Alt7	ACL Alt 1	ACL Alt 2	ACL Alt 3	ACL Alt 4	ACL Alt 5	ACL Alt 6	ACL Alt 7
Alt. 1	1 per vessel (May-Aug)								365	365	365	365	365	365	365
Alt. 2	1 per person	28-May							148	365	365	365	365	365	365
Alt. 3	1 per vessel	30-Sep							273	365	365	365	365	365	365
Alt. 4	1 per person (May-Aug)	11-Jul							71	365	365	365	365	365	365
Alt. 5 *	3 per person	19-Jan	23-Jul	20-Jul	17-Jul	12-Jul	11-Jul	28-Jun	365	83	80	77	72	71	58

*IPT recommended addition.